

**POLISHING APPARATUS AND METHOD AND SEMICONDUCTOR DEVICE
MANUFACTURING METHOD USING THE SAME**

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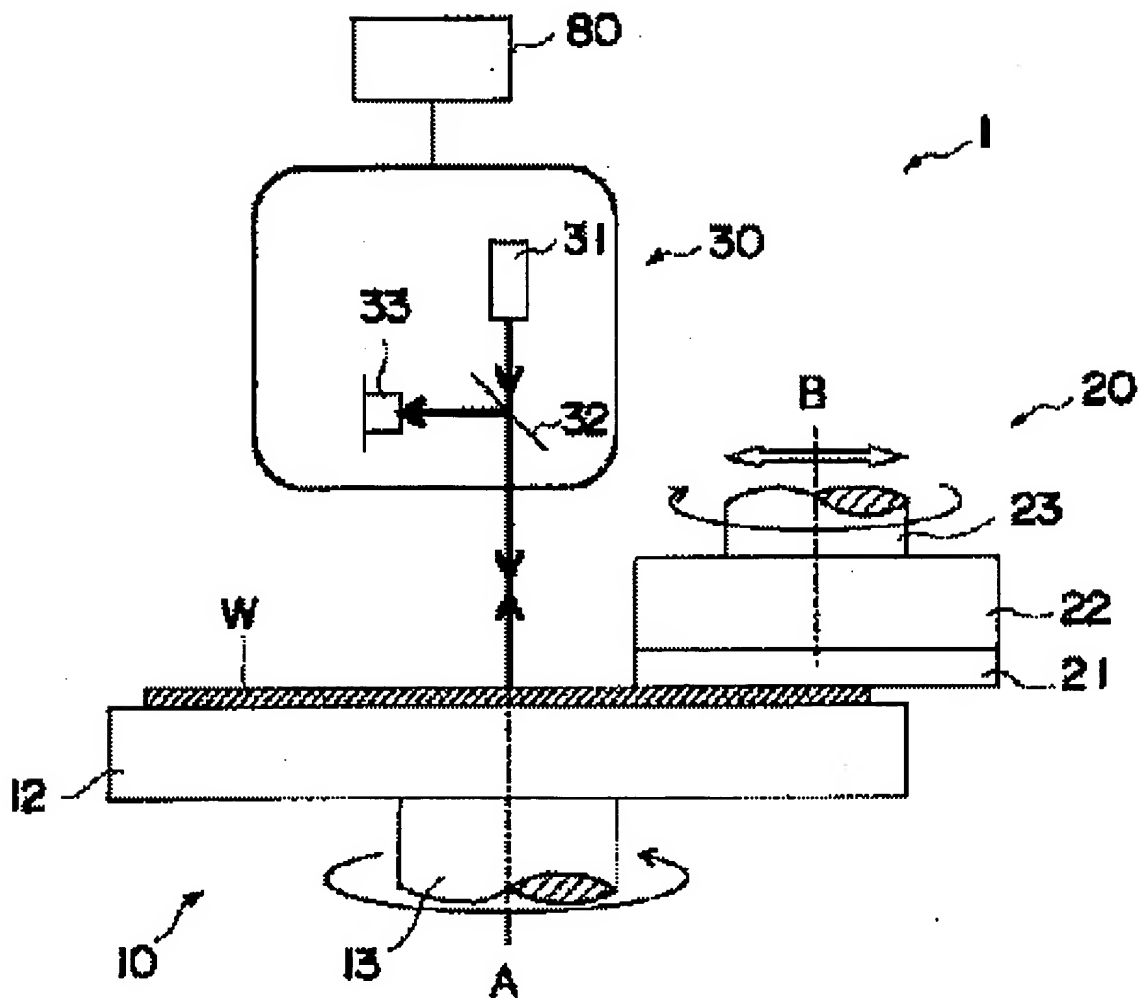
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Abstract:

PROBLEM TO BE SOLVED: To obtain a polishing apparatus that can precisely detect the polishing end point in a wafer that is being polished and machined. **SOLUTION:** This polishing apparatus 1 has a wafer holder 12 that sucks and retains a wafer W on an upper surface, a head member 22 that is positioned at the upper portion of the wafer holder and has a polishing pad 21 on a lower surface, and an optical measurement section 30 that measures the surface state of the wafer W. The wafer W is retained by the wafer holder 12 for rotating and driving, and is flatly polished and machined by the CMP operation of slurry at a portion to the polishing pad 21 that is crimped to the surface to be polished of the wafer for relative movement. Probe light from the optical measurement section 30 is irradiated to the rotary center (specific position) of the wafer W, and variation in the intensity of reflection signal light during polishing and machining is measured. In this configuration, a measurement position is constantly the same even if the wafer W is rotated, thus precisely judging a polishing end point in the wafer.

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